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**Generation and modeling of near-LTE plasmas using
ultrashort pulse laser heated tamped, mid-Z targets**

Bruce K.F. Young, Brian G. Wilson, Dwight F. Price, and Richard E. Stewart
University of California, Lawrence Livermore National Laboratory

We have used high-intensity, high-contrast ($\approx 10^7$), ultrashort laser pulses of intensities up to $3 \times 10^{19} \text{ W}\cdot\text{cm}^{-2}$ generated at the LLNL 100 fs Ultrashort Pulse Laser (USP) to study near solid density plasmas. In a recent series of experiments, we investigate whether these plasmas approach local thermodynamic equilibrium (LTE) conditions. We measure the L-shell x-ray emission from a 200Å thick Ge target which was tamped by 0-1000Å of CH and heated by a 400 nm, 130 fs laser pulse of intensity between 3×10^{17} to $3 \times 10^{19} \text{ W}\cdot\text{cm}^{-2}$. Detailed LASNEX hydrodynamic simulations are similar to those reported by Guethlein, *et al.*[†] We compare the x-ray spectra with various LTE and non-LTE LASNEX simulations using simple atomic (XSN and SCA) models, and using a non-LTE STA package which is similar to the RADIOM NLTE methodology of Busquet[#]. We find very good qualitative agreement with these latter NLTE/STA simulations. We describe these experiments, and discuss improvements for future experiments.

[†]G. Guethlein, M. E. Foord, and D. Price, Phys. Rev. Lett. **77**, 1055 (1996).

[#]M. Busquet, Phys. Fluids B, **5**, 4191 (1993).

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